PUBLIC HEALTH ACT.

(11 & 12 Vict., Cap. 63.)

REPORT

TO THE

GENERAL BOARD OF HEALTH,

ON A

PRELIMINARY INQUIRY

INTO THE SEWERAGE, DRAINAGE, AND SUPPLY OF WATER, AND THE SANITARY CONDITION OF THE INHABITANTS

OF THE TOWN OF

ETON.

BY EDWARD CRESY,

SUPERINTENDING INSPECTOR.

LONDON:

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FOR HER MAJESTY'S STATIONERY OFFICE.

1849.

NOTIFICATION.

THE General Board of Health hereby give notice, in terms of section of the Public Health Act, that on or before the 16th July, writ statements may be forwarded to the Board with respect to any ma contained in or omitted from the accompanying Report on the Sewera Drainage, and Supply of Water, and the Sanitary Condition of Inhabitants of the town of ETON, or with respect to any ame ment to be proposed therein.

By order of the Board,

HENRY AUSTIN, *Secretary*

Gwydyr House, Whitehall,
11*th June*, 1849.

ETON.

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PUBLIC HEALTH ACT (11 and 12 Vict., cap. 63).

Report to the General Board of Health on a Preliminary Inquiry into the Sewerage, Drainage, and Supply of Water, and the Sanitary Condition of the Inhabitants of the Town of ETON. By EDWARD CRESY, Superintending Inspector.

MY LORDS AND GENTLEMEN,

IN consequence of the General Board of Health receiving a petition from the town of Eton, in the hundred of Stoke, the deanery of Burnham, and county of Bucks, signed by 76 out of 420 rateable inhabitants, I had the honour to be named the Superintendant-Inspector to visit the town and examine its state of drainage, supply of water, and other matters upon which the sanitary condition of its inhabitants depends. After giving proper notice, by advertising in the county papers, by affixing the same to the doors of the several public buildings, a general meeting was held at Mr. Turnock's rooms on Monday, 15th January, 1849, at 11 o'clock, to receive evidence upon the necessity of applying the Public Health Act to that district, which is bounded on the north by Barne's Pool and Cotterell's Close; on the east and south-east by the Tangier Mill Streams, and partly by the river Thames; on the south by the other part of the said river; and on the west by the Brocas, the little South Meadow, and the great South Meadow respectively.

At the room and hour appointed several of the most respectable inhabitants were in attendance, among whom were Mr. William J. Sanders, Mr. William Vaughan, Mr. E. C. Vaughan, Mr. Henry Ingalton, Mr. Thomas Ingalton, Mr. C. P. Barrett, Thomas Bacheldor, Esq., and several other gentlemen.

The town of ETON is built upon an almost level site, its form being a parallelogram, about 1600 feet in length from one bridge to the other, and about 700 feet in width, altogether comprising about 25¾ acres, or 1,120,000 superficial feet. The High-street extends from the Windsor Bridge, over the Thames, in a north-westerly direction, to another small bridge over Barne's Pool, beyond which are the College and the residences for the masters and scholars of that renowned establishment. This street is about 33 feet in width upon an average, and almost level throughout, its surface being 6 feet above the

ordinary level of the water in the ditches, on the west and ea sides of the town.

The houses on each side of the High-street are about 75 number; 300 smaller habitations are situated in narrow stre and courts, which branch out, from the principal thoroughfa in the direction of one or other of the ditches already alluded

At Eton Wick, at the end of the parish, are several oth small tenements, without drainage or a proper supply of wat they amount to upwards of 40 in number, and the open ditch which have at one time carried away the drainage towa the Common, are stopped up at the lower end, and are in co sequence in a very bad state.

2. Geological Stratification.—*The River Thames*, af passing through a rich and fertile district, flows along one si of the parish of Eton.

The valley of the Thames abounds with almost every vari of soil. Sands, clay, marly, and chalky limestones, form t basis of the deposits around Eton, and these are oftentim so mixed as at first sight to appear as one mass and not dep sited in lamina or regular beds. The eminence of the cha on which stands the Castle at Windsor, forms a bold promo tary on one side of Eton, and formerly might have extend more into the valley, and dammed up the river into the fo of a lake, where under its broad expanse, the present Bro and fertile soil above Eton were slowly deposited.

3. From the turn made in the course of the river, by t chalk promontory before alluded to, which crosses the val below Eton, it is very difficult to determine the natural dir tion to which the waters beneath the soil tend, or in otl words, that of the plane upon which they lie, and drain fro in all probability, before the weir was thrown across the ma stream, the inclination of the surface of the land was towa the south. At present it has several directions given to either by art, or by obstructions which have been made to t ordinary flowing of the water.

4. The quantity of rain which falls upon the 26¾ acres land, may annually amount to 2,500,000 cubic feet, the grea portion of which at present passes into the Thames; the wh soil of Eton being generally saturated with water, except af very long continuance of dry weather, there can be no abso tion; hence what falls during a continued rain, for the m part flows away. The only drainage of the land in the neig bourhood of the town, is by open ditches, which are in a ve improper condition, and by no means calculated efficiently carry away the pluvial waters.

The prevailing winds are from the south and south-we and in the direction of the valley through which the no Thames takes its course.

There is at various periods of the year considerable humidity in the atmosphere, particularly in the autumnal months.

5. Population.—The entire parish contains at present 782 acres of land and 547 houses. Eton Wick has about 80 houses, the College precincts 47; the other 420 being comprised in the town of Eton.

At the last census in 1841 the number of houses were 547, and the population 3526. The average, at that time, being 6·4 inhabitants to each house.

6. The number of inhabitants at present are stated to be 3800, and there are 582 rateable properties in the entire parish.

The gross value of the parish is . .	£12,816
The nett rateable ditto	9,296

	s.	*d.*	
The poor-rates for the last seven years have been, upon an average . .	2	8	in the pound.
The lighting and watching . . .	0	8	„
The highway rate	0	8	„
Total rates . . .	4	0	

The watching and lighting is performed under the general Act of 3 and 4 Wm. IV., cap. 90, and its provisions were first adopted by the parishioners on the 1st December, 1835.

The average cost of lighting and watching is 127*l.* per annum.

There are nine public gas-lights, for each of which 3*l.* 5*s.* is paid annually.

The parish has one fire-engine, which was purchased a few years ago by means of a subscription among the inhabitants.

7. When the last census was taken, the average age of all who died in the district which comprises Eton, was 32 years and six months; and of those who died above 20 years of age 67 years and 10 months.

8. The proportion per cent. of deaths was as follows:—

Under 1 year	19·
„ 5 years	36·2
„ 15 years	44·3
„ 20 years	46·7
Between 20 and 30 years . .	7·1
„ 30 and 40 years . .	5·5
„ 40 and 50 years . .	5·5
„ 50 and 60 years . .	5·9
„ 60 and 70 years . .	11·7
„ 70 and 80 years . .	10·7
„ 80 and 90 years . .	6·
90 years and upwards .	0·8

The loss of life to every individual was four months.
To every adult three months.

9. The proportion of deaths to the entire population, the registration district, 38,454, was one in every 49, or at t rate of 20·5 for every thousand.

10. The total money loss on the year's deaths of the distri is stated to be 1,245*l.*

11. Most of the deaths from endemic disease are stated have occurred in the worse-drained districts, where the labou ing classes principally reside; but from the difficulty obtaining accurate data, it is not possible to give a stat ment of the loss that is annually sustained from sickness a death.

The deaths from epidemic diseases were 320 out of a pop lation of 38,454, one in every 120 of the entire number.

The average number of deaths per annum from Septem 1841, to September, 1848, was 51$\frac{3}{7}$ of the whole populat the total number of deaths during that period being 360.

During the six months, from September 30, 1848, March 3, 1849, according to a return furnished by M W. G. S. Clark, surgeon to the Eton division, there were cases of continued fever, 8 cases of diarrhœa, 4 cases ophthalmia, 1 of hooping cough, and 1 of influenza.

The fever cases were 11 between the ages of 3 and 16, a 2 adults; those of diarrhœa, 4 between the ages of 4$\frac{1}{2}$ and and 4 adults.

The four cases of ophthalmia were between the ages of 4$\frac{1}{2}$ a 11 years.

The chief localities of disease were Strugnell's-building Pleasant-row, Brocas-lane, Hawke's-lane, Mill Fields, I Belle Vue, Eton Wick, King's-stables, and the courts adjace

All these streets and alleys are in a bad condition; th are not drained, nor have the inhabitants any other mea than those which the cesspools afford to free their habitatio from the refuse and excrementitious matters.

12. The Roads are kept in tolerably good repair, althou there does not appear to be any regular or proper syst adopted to maintain them as they ought to be; they are neith scraped, watered, nor cleansed at stated times or as often as required. There are out of the town of Eton, by the road-si open ditches, and a considerable quantity of matter with them that requires frequent casting out.

13. The roads are mostly so level, that by a little attenti the draught may always be maintained with a comparativ small excess of ordinary labour.

14. The returns of the quantity of excisable articles d posed of here, would not show the consumption by the inh

bitants, as so many travellers make purchases on their way through the town.

15. There are several public-houses and beer-shops as well as others for the sale of spirits; it being a great thoroughfare town, and so many travellers passing through, no accurate estimate can be made of the quantity consumed by the inhabitants.

16. Buildings are increasing in number, in and upon the remaining vacant grounds, in the neighbourhood of the Tangier Mill-lane; and it would be of great advantage to the health of Eton if means were taken to have the roads and streets of the proper width, and that each dwelling should be efficiently drained; the control of a local Board would be of the greatest benefit.

17. There are no arrangements made for due and efficient cleansing, or for the removal of decomposing refuse; and the taking away the cinders, ash-heaps, &c., is mostly left to the inhabitants to perform.

18. State of the Drainage.—Without a system of sewers, having for their object the removal of that accumulation of refuse which necessarily occurs wherever a number of persons establish their habitations, it is perfectly impossible to prevent an increase of disease, or its consequent mortality.

The wealthy inhabitants of a town have it in their power to remove all which may be gathered on their premises, or that may become injurious to health; not so the poorer classes; the interference of some public authority is necessary to relieve them from that which becomes, in a short time, if left in the neighbourhood of their dwellings, the origin of fever and the evils in its train.

19. The farmers in the vicinity of Eton do not appear at present aware of the quantity of the material that might be collected here, nor acquainted with its fertilizing properties.

20. The loss to agriculture, in consequence of suffering all the valuable night-soil, and other phosphates, to run waste into the river and pollute the Thames, may be fairly valued at 700*l.*, or perhaps 1000*l.* per annum. It is estimated that a quantity is produced, sufficient, if collected, to manure the entire parish, and which, under proper management, might more than double the amount of the present production.

21. With regard to the dimensions for a public sewer, it is necessary to observe, that for more than a century a most absurd practice has been adopted, of building them in all situations, sufficiently large for a man to enter and cleanse them, as often as occasion should require; and with manholes formed at regular distances, at which we have periodically observed a windlass and buckets employed to raise from the sewer into the street,

what ought to have been floated away; and there are perso who still advocate this practice, and recommend that the sew should have a flat bottom, that the workmen within it ma have better standing place. When there is not a sufficie quantity of water discharged, and the sewer lays very flat, cannot be cleansed by any other means; and it often happe after a thunder storm, that the first rush of water drives th accumulated silt and filth into a mass, which obstructs th current and water way, when the sewer becomes lifted, or a it is termed "blown." Whatever communication a house ma have with such a source of foul air, we find a difficulty in pr venting its pervading the apartments; traps of various kin are introduced in the drains, or cover the pipes which lead fro the sinks, or gullies, but nothing has hitherto been discover effectually to prevent the noxious smells arising at particul changes of the weather; no evil can be worse than making to large a sewer, or having a drain of too great dimensions. Th smaller the sectional areas, the better will be the scour, an consequently the less the accumulation of filth within it; it a waste of money to construct such underground works as hav been hitherto considered necessary to drain a street, or even large town, and to require that each house should have a ci cular drain 12 inches in diameter, is an absurdity, when one ninth part of the capacity is found to be sufficient, and t keep itself perfectly clean; with the power of flushing, o under pressure, directing a quantity of water through a lengt of tube of small bore, any reasonable impediment must yiel and float before it, and if the passage is rendered clear throug the small tubes, there will be no difficulty whatever to mai tain it open, through the main sewer. A small sewer, regu larly flushed with water, can have no matter lodged within i hence the importance of an abundant supply, by which w make a tube of small bore answer.

The drainage of Eton at present, is very imperfect. Most o the houses have cesspools, the overflowings of which are carri away at times into the open pestilential ditches, bounding th town on its east and west sides. After taking the level o these ditches it was difficult to determine which was the lowest but as there are several culverts passing under the High-stre and forming a communication between them, the probability i that the current was intended to be towards the east, and tha these covered drains, during floods, assisted to carry off th surplus waters.

There can be little doubt that soon after the founding of th College the town gained its present importance, and was re sorted to by tradesmen who expected to derive a livelihoo from this endowed establishment; and the chief street bein the only road from Windsor to Slough, has from time to tim

been raised above the level of the adjoining meadows; it then became necessary to construct beneath it the courses for the flood waters, to which we have already alluded.

The drainage of all the houses in the town originally was and still is at their rear, and for some time was, probably, unimpeded, the 150 houses of the High-street being separated into blocks of half a dozen, or more, draining into the present open ditches.

There is no reason, however, why these ditches should ever have become elongated cesspools, as we now find them, for the same system of flushing might have been applied to them as was introduced at the College when its foundations were laid, or perhaps during the time that the learned Sir Henry Wotton was the Provost. This excellent man, who was buried in the chapel, paid particular attention to the drainage of Italy, and shows us in his Elements of Architecture how much he had studied the subject:—

"Touching conduits for the suillage and other necessities of the house, which how base soever in use, yet for the health of the inhabitants, are as considerable and perhaps more than the rest, that art should imitate nature on those ignoble conveyances, and separate them from sight (where there wants a running water) into the most remote, and lowest, and thickest part of the foundations, with secret vents passing up through the walls, like a funnel to the wilde aire aloft, which all Italian artizans commend, for the discharge of noysome vapours, though elsewhere, to my knowledge, little practised."

In one of the brick towers, at the north-west angle of the façade, is still remaining the machinery by which the original sewer, leading from the offices of the College, was flushed; and it seems to have been the duty of an officer appointed to its superintendance, at stated times, to let down a gate, moving perpendicularly in two grooves, and pen back all the water in the upper length of the water-course, which ordinarily ran freely in this direction; when a sufficient head was obtained to give force to the current, the sluice or gate was suddenly drawn up, and the great rush and continued velocity of the stream bore down any accumulated matter that might be lodged at the bottom of the sewer, and carried it into the Thames.

A similar system of flushing was adopted by the Romans; in several of the aqueducts we find grooves in the side-walls, in which bronze doors have fitted, which, when closed, could dam up a vast head of water, that liberated would have sufficient power to carry down any deposit resting at the bottom of the water conduits. As the fall in these aqueducts was frequently not more than three inches in a mile, the velocity of the water was so slow that it would deposit all the earthy matter it might have contained during its course; and hence the necessity of continually flushing. Although this ancient and

excellent system was early applied to the sewers of the College; it does not seem to have been adopted to cleanse the four ditches around the town. Water might have been easily introduced from the Thames, which, by means of sluice gates, could have been penned sufficiently high to have most efficiently performed this duty.

23. At present there is a length of upwards of 2600 feet of uncleansed open ditch, of an average width of four feet, encircling the dwellings of this town; equal to 10,400 superficial feet of open cesspool, which, during the summer months, and indeed at all other times when the flood-waters are not out, infects the air with poisonous emanations, arising from the putrid organic matter with which they are charged to overflowing.

This area of pollution is perfectly independent of that comprised by the numerous cesspools and privies abounding in all quarters.

Were it possible to exhibit this mass of filth in one area in the middle of a town, public opinion would revolt at it, and the inhabitants themselves would fly from its infection; yet it is no less an evil, as it is made to wind and meander through the several streets, and perhaps its injurious effects are more imperfectly controlled than they would be in a single large cesspool. Several of the gateways and narrow passages by the side of the different blocks of houses, in the main street, are now formed into courts, where the dwellings of the humbler classes are closely packed together, with very defective water supply, and in some instances without any drainage whatever.

Wherever the open gutters have been recently culverted, to permit of the erection of additional cottages, they have been so inefficiently constructed, that they are not of the slightest utility.

The small houses in Brocas-street, and the adjoining courts, pour forth and discharge all their fetid and offensive matters into an open ditch, at the south-west angle of the town; and upon an examination of this ditch, it was found to be, in several places, without any current, and that only in flood-times could its contents be carried along to its natural discharge at Barne's Pool, an open pond, close upon the precincts of the college. On the banks of this ditch several proprietors of the contiguous gardens and orchards had constructed arbours and small summer-houses, which, it was stated, could not be enjoyed during the hot weather, in consequence of the bad air arising from the ditches. At the north-east angle of the town, in the rear of the houses at this extremity, the open ditch advances nearer the high street, and after skirting the east side, and receiving the drainage from the whole of this part of the town, was intended to be carried into two

or three open courses into the river. The chief of them, apparently, had, at one time, been discharged into the tail water of the Water Company's establishment, where the wheel works their pumps; but, at the present time, it is stopped up, and there is no discharge whatever through it, consequently an incredible accumulation of filth and sullage has taken place in the immediate vicinity of the gardens and habitations.

The wells from whence the pump-water is derived are, in several instances, close to these ditches, or to the open cess-pools, which overflow into them, and, as a matter of course, the water is impregnated by what oozes into the wells; its purity in the first instance may even be doubted, percolating as it does through a soil so saturated. Nor can it be imagined that the air would be less affected with so much miasma, producing the most baneful effects on the inhabitants of all ages, but more especially on the young, whose irresistible impulse is ever to seek recreation in the open air; it is, consequently, most important that the greatest attention should be paid to the removal of everything that could by possibility become unwholesome from the neighbourhood of all such establishments as Eton College, where so many youths are assembled, whose organization and previously careful tending render them peculiarly susceptible of any malaria.

24. Present Water Supply.—The water which is not derived from pumps belonging to the inhabitants is obtained from the works situated at the bottom of the Tangier-road or lane, on the margin of the Thames. The three barrels with plungers or forcers of the original water-works for supplying Eton and Windsor are still in existence, although the water is lifted and not forced, as formerly. The present engine consists of three 9-inch cylinders, with pistons, making an 18-inch stroke, worked by a water-wheel, and the quantity of water supplied is about 5000 gallons per hour, or, in the 24 hours, 1,200,000 gallons.

The proprietor has, at the corn-mill contiguous, a larger engine, which is occasionally worked, and which is capable of trebling the quantity should it be demanded.

The supply is derived from a well, the water in which stands about the same level as that in the stream which turns the wheel: it is lifted at Windsor to the height of from 200 to 250 feet; the highest level at which it is delivered being Mr. Montgomery's houses and Ship-street.

The cavalry and infantry barracks each daily receive 6000 gallons.

The first main is 10 inches in diameter, the next 6 inches, afterwards they diminish to 4 and 3 inches: they are all of iron. They pass through Eton in one direction towards the college, in the other over the bridge to the town of Windsor.

The charges for the supply to the different houses is the same as those in the metropolis, and are complained of as very exorbitant. As the works belong to one or more private individuals, it was not possible to ascertain the amount annually received for water, but it was generally stated to be very considerable, and highly remunerative.

The quality of the water has not been sufficiently examined to speak of its fitness for culinary purposes; being taken from the Thames, it possesses all the impurities which are ordinarily found in that water.

25. The cost of making wells is not great. Water is found within a few feet of the surface, but it varies in quality, and is so charged with organic matter, that it is not fit for all the purposes of supply; it is, however, never deficient in quantity.

The lowest cost of a pump and well amounts to 7*l.* or 8*l.*; but the average probably would be nearer 10*l.*

26. Baths are not made use of, the bathers, or those who desire such a healthy resort, proceed at once to the Thames, where there are places set apart for them.

27. There are many disadvantages, from the want of a constant supply of water, and not having the mains always charged: in a sanitary point of view an abundance of water is as important as good drainage, and without it the best sewers are of little use, but rather injurious, as they become the reservoirs of decomposing matter, as well as of the noxious gases produced.

28. Cleansing the Cesspools is an annually recurring expense, and the proprietor of several houses complained that it was a tax which pressed very heavily and required remedy: 2*l.* 7*s.* 6*d.* was the sum he had to pay for emptying one privy cesspool and carting away the soil; an amount equal to ten weeks' rent of the small house to which it belonged. The above charge was independent of putting the floor, seat, &c., into proper order after the cleansing. Of course, when the cesspool becomes charged, there is some hesitation to employ proper means of emptying it, and often it is suffered to flow away over the yard into the neighbouring ditch rather than incur the expense.

If we estimate the emptying of cesspools at one-half the above, we shall have upwards of 500*l.* per annum expended upon this item alone; more than sufficient to pay the average annual rate, for both principal and interest of double the amount required, if borrowed for 30 years, to put the town of Eton into a proper sanitary state.

To retain upon the premises matter which, under every temperature, yields an unpleasant odour, and this often within a few feet of the living rooms, never would have been permitted

if a remedy for the evil had been afforded or suggested. Hitherto, however, it has not been practicable to do away with the fetid cesspool, and until sufficient powers were given by the Public Health Act, the inhabitants were obliged to live within the circle of pollution and to suffer from the maladies it produced. An opportunity is now offered to introduce an improved arrangement, which will bring with it decency, habits of cleanliness, and health.

29. New Sources of Water Supply.—By establishing an engine in the meadows above the town, any quantity of water required for the supply of the inhabitants of Eton might be pumped up, and distributed before it could receive any contamination from the drainage or fœtid matter, that the town is constantly producing; by selecting a bed of gravel and sinking a shaft, through the alluvium which is spread over the valley, there would be found an abundance of naturally filtered water, which might be still further improved by art if required.

To supply each house with a hundred gallons of water per day, and sufficient to flush the sewers, wash the courts, streets, and public places, and at all times to have it delivered under pressure, requires either some modification of existing arrangements, or that a new principle should be worked out. Supposing 100,000 gallons required each day, or throughout the year, 36,500,000 gallons for the town of Eton, and it is necessary to lay down fresh mains, and erect an engine, the whole might be done by an outlay of 1500*l.*

One penny per week per house, for the 450 is 1*l.* 17*s.* 6*d.* amounting to 97*l.* 10*s.* 6*d.* per annum, which would repay a loan for the purpose in 30 years.

30. Proposed Measures to Improve the Drainage.—About 1600 feet of sewer, embracing the rear of the houses in the high street, or an area of oval form whose diameters are 610 and 320 feet, may be so laid out as conveniently to receive all the drains that now are, or may hereafter be placed in any part of the town.

The fall which can be obtained on either side of the chief thoroughfare is not more than 6 feet 2 inches, that being the difference of level between the crown of the road and the surface water of the ditches; by a proper arrangement, and with two outfalls, an inch inclination to every 10 feet, or 1 in 120 may be obtained, which is sufficient for the purpose.

The most efficient sewer would be an egg-shaped tubular pipe, made of glazed earthenware, with internal dimensions of 25 inches by 18 inches, and which might for less than 1000*l.* be laid throughout the entire length of 1600 yards, with all

necessary joints, bends, and turns, together with two brick tank or receivers, of sufficient dimensions, and so constructed as t prevent any effluvia from escaping, which would receive all tha was conducted by the main sewer, in a state fit for agricultura or horticultural employment. This amount of 1000*l.* woul be sufficient to cover all the expenses that the Local Boar would be called upon to lay out upon the sewers, to repa which 59*l.* 3*s.* 4*d.* would be the average annual instalment fo 30 years' principal and interest, which, on 450 houses, doe not amount to 2*s.* 9*d.* per annum each. So small an annua payment surely would not be withheld, when the advantage to be obtained are so great.

It is also less inconvenient to pass to the backs of the houses either for its construction or repair; in one case the stree must be rendered impassable, in the other all the necessar repairs are performed in such a situation as to cause neithe inconvenience nor injury to any one.

But the chief advantage derived from this arrangement is that the sewer, being brought to the borders of every inha bitant's premises, where the sewage commences, and at the back of the house, a very short communication is required neither is there any necessity to sink the drains deep, or to con vey them under the dwelling-house, where if any accident oc curred, the whole family would suffer in some way or the other

Such a tubular sewer, laid with an uniform fall, delivering all its contents into two or more well-constructed tanks, under proper supervision and regularly (flushed as it might be, in this situation daily if necessary,) would confer the greates benefit possible on the inhabitants, as well as on the suburbs and neighbourhood generally.

Tanks may be constructed both on the east and west sides o the town, for the holding the refuse matter, discharged by the sewers, the two positions selected are shown upon the plan.

After having disposed of the common sewage, or that portion which is paid for by a district rate, it is necessary to show how the houses may be adapted, to benefit from such an arrangement Each is required to have a *supply of water*, proper sinks, drains and a water-closet; the present privy, if there is one, must be re-arranged; the cesspool cleaned and filled up; an earthen ware pan introduced, with a tubular pipe, an S trap connected with the sewer; and supplied with a sufficient quantity of water, to keep the whole thoroughly cleansed and scoured.

In towns, generally, we find a considerable number of the smaller tenements belonging to one individual, who has taken a plot of land, and from time to time built several houses; these are usually arranged in courts, alleys, squares, or streets, in such a manner that they may be perfectly drained, under the regulations contained in the new Act, anterior to

which enactment an isolated estate, covered with houses, newly built, had no alternative but the cesspool; the adjoining proprietors, not permitting their land to be broken up for sewage, or interfered with in any way, required by an increased population, or by a change in the condition of the site they occupied. Wherever any land is disposed of for building purposes, the ditches which have carried away the surplus waters, are invariably made use of to receive the drainage, which being uncovered, rapidly become injurious, from the quantity of putrid matter they contain.

Under proper management all these evils might be prevented; but when separate builders are left to complete their speculations, they have no other alternative than to make each house as perfect in itself as they can, in order that it may be marketable; each has its drainage and pump, or a number or row of houses share these advantages in common. When we estimate the cost of a cesspool and the annual charge for cleansing it, the expense of sinking a well, and putting up a pump, we are surprised at the amount which a village or town pays, beyond what it would do, if one general system were carried out and defrayed out of a general fund:—450 cottages could not have each a pump and cesspool, at a less cost in such a situation as Eton, than 5000*l.*, besides annually incurring the expense of repair and cleansing, of 450*l.* at least.

The expense of an earthenware glazed pan, S trap and pipe-drain, to connect it with the sewer, does not incur an outlay of more than 35*s.*

31. Supposing the plans suggested for the draining, and supply of water carried into effect, it has been shown that to construct the main sewer and tanks would cost £1,000 0 0
An engine and mains for a constant supply of water 1,500 0 0

£2,500 0 0

A loan of 5*l.* per house, supposing the number to be 500, would be sufficient to effect all that is required, and the whole average annual instalment required, would be 295*l.* 16*s.* 8*d.* for 30 years, when the money borrowed would be paid off:—

	£.	*s.*	*d.*
The average instalment as above . . .	295	16	8
Cost of management, local inspector, coals for engine, engine-man, &c., sundries, repairs, &c.	250	0	0
	£545	16	8

As a set off, let us also on the other side suppose—

	£.	s.	d.
2000 tons of night soil disposed of, at 5*s.* per ton	500	0	
That we save the cost of cleansing out the cesspools	500	0	
And have an ample supply of water to each house (100 gallons per day), and that each house pays upon an average 1*d.* per week . . .	108	6	
	£1,108	6	

Leaving out the saving of cleansing the privies, we have £608 6
to receive, and which no doubt could be obtained: more than enough to defray all the expenses, and pay the interest on the capital expended.

The benefits which would be derived by the inhabitants of Eton, would indeed be great; every house would have its constant supply of pure water, complete drainage, a water closet the cesspool entirely removed, and all the fœtid putrescent matters carried off by tubes and sewers, under efficient management. A rate of only 5*d.* per week upon each house, would be required, to accomplish this, even if the night soil could not be disposed of; but as in other districts, when properly prepared, it is eagerly sought after, there is no reason to suppose that the present case would be an exception. It may fairly be expected that the entire refuse matter of Eton, may be sold annually for the sum we have already estimated, and if so, the inhabitants will obtain all the advantages enumerated almost without any cost.

The excreta of an adult are more than sufficient to manure an acre of land, then why should it be washed into the Thames to pollute the water, the shore, and the air of the surrounding neighbourhood? The noble Castle at Windsor, and the College of Eton opposite, demand that every attention should be paid to maintain the atmosphere in its naturally healthy state and why should that be rendered worse than useless, which properly applied would keep in heart 4000 acres of land, and make it doubly productive?

Protection from Floods.—To secure and preserve the town from the effect of the flood-waters which occasionally issue with great force from opposite Clewer, and then run towards the west side of Eton, it would be necessary to construct an embankment, a mile and a-half in length, enclosing 150 acres immediately around the town, to protect it from inundation. Such

a wall raised five feet in height above the level of the meadow land, would prevent the floods from passing in the direction they now do, diverting them into another channel, without injuring the habitations, or spreading over the town. The direction of the embankment, is shown upon the plan, and the cost of throwing it up, may be estimated at 2500*l*.

32. Proposed Boundary.—The accompanying plan indicates the district to which it is proposed to apply the Public Health Act, namely, all enclosed with the dark line, and comprising the whole of the dwelling-houses, yards, gardens, and orchards of what is denominated the town of Eton.

Eton Wick, with its cottages, may be advantageously comprised, and have a similar system of drainage and water supply if deemed necessary. There are here 40 or 50 houses draining into open ditches, at times described as being in a very filthy state.

The college, and the various houses in its neighbourhood, chiefly occupied by the masters and pupils, should be included within the proposed boundary. And if the whole of Eton were placed under one jurisdiction and management, it would be productive of the greatest good both to the town and college.

Upon an examination of the sewers of the college I found them of the largest size, and recently constructed at a vast expense, yet the privies of the head master, the Rev. Dr. Hawtray, and of several of the other masters, still retained their capacious cesspools, which had no communication whatever with these new sewers. In several instances the privies were placed directly under the windows of the sleeping-rooms, doubtlessly affecting their salubrity, more than the contiguous trees, which it has been suggested should be cut down, but which might safely remain, if surrounded by a purer atmosphere.

The Local Board should consist of nine persons, to be elected by the owners of property and rate-payers, and one-third annually to go out of office by rotation; the number of vacancies to be again filled up in a similar manner.

33. Summary.—By a reference to section 10, it will be seen that the mortality here exceeds that of a healthy district; continued fever, diarrhœa, influenza, are constantly met with in several of the streets and alleys which are imperfectly drained. There could be no question, but that immense benefit would result from the introduction of a proper system of sewerage, comprising at the same time the suburban and town drainage; from the peculiarly low situation of Eton, too much stress cannot be laid upon the importance of cutting off the land drainage before it reaches the town, and providing a proper outfall in flood times; during which seasons, the water

rises through the soil, and lifts from the surface all the impurities which may happen to cover it, or which may have soaked into it.

Coupled with a complete system of drainage, it is important that all cesspools and open ditches be at once filled up, and provision made for preventing the river water from receiving any contamination.

That every house should have its soil-pan and apparatus and covered channels for discharging the waste and pluvial waters.

That an abundant supply of pure and wholesome water on the constant principle, be provided for each house, and for occasional flushing the sewers, drains, &c.

That there should be adopted a more complete system of surface cleaning, and of paving the unpaved courts, alleys and streets.

That the town refuse and sewer water may be sold and employed for agricultural aud horticultural improvements.

That the whole of the improvements suggested will be in reduction of the present charges as is clearly perceived by reference to the foregoing estimates.

34. In conclusion, I beg leave to reiterate that it is of the utmost importance that the drainage, supply of water, cleansing the streets, proper maintenance of the roads and footways, the lighting, and all the other matters in which public health is concerned, should be placed under the management of a properly constituted local Board, whose authority should extend beyond the limits of the town of Eton, and should comprise the buildings at Eton Wick, the College, and its dependencies thereby preventing those clashing interests which are now detrimental to the progress of any public improvement.

I have the honour to be,
My Lords and Gentlemen,
Your obedient Servant,
EDWARD CRESY,
Superintending Inspecto